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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
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Deployment of Wireline Services Offering)
Advanced Telecommunications Capability)
_____)

CC Docket No. 98-147

COMMENTS OF NORTHERN TELECOM, INC.

Stephen L. Goodman
Halprin, Temple, Goodman & Sugrue
1100 New York Avenue, NW
Suite 650, East Tower
Washington, D.C. 20005
(202) 371-9100

Counsel for Northern Telecom Inc.

Of Counsel:

John G. Lamb, Jr.
Northern Telecom Inc.
2100 Lakeside Boulevard
Richardson, Texas 75081-1599

Dated: September 25, 1998

No. of Copies rec'd 029
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SUMMARY

Nortel supports the Commission's goal of facilitating the deployment of advanced telecommunications capabilities, by the RBOCs and others, and of enhancing competition. Should the Commission adopt its tentative conclusion to allow the incumbent LECs to establish separate advanced services affiliates, Nortel recommends that measures be taken to ensure that there are no regulatory impediments to the deployment of integrated solutions. In particular, with regard to separation of switching facilities and operations, it should be possible for the incumbent LEC and its advanced services affiliate to deploy high-speed data line equipment on the LEC's switch. In crafting its rules, the Commission should be careful not to preclude the use of integrated solutions like Nortel's 1 Meg Modem by either incumbent LECs or CLECs.

With respect to advanced technologies' capabilities, in order to give the market sufficient flexibility, trying to be too precise in the types of equipment that can be collocated would be counterproductive to the deployment of new and advanced technologies. To try and establish demarcations will inevitably distort the market because the industry will try to develop equipment which fits the rules.

The deployment of xDSL should not be impeded by requiring excess conditioning and qualification of loops. For copper facilities to be provided in a fair and reasonable manner for xDSL technology deployment, the rules should allow for costs to be in proportion to the physical characteristics of the loop and the conditioning required by the selected technology. Again, such consideration will result in lower costs, more rapid deployment, and ultimately in wider availability of xDSL technology, especially to small business, residential and rural users.

Through a notice and comment proceeding, the Commission should modify Part 68 to accommodate new technologies such as xDSL. In the interim, the Commission should grant waivers of Part 68 when a manufacturer can demonstrate that its product will avoid harm to the network. Such a waiver process will facilitate early deployment of new technologies and faster accumulation of field experience.

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COMMENTS OF NORTHERN TELECOM, INC.

Northern Telecom Inc. ("Nortel") hereby responds to some of the issues raised in the Notice of Proposed Rulemaking and Memorandum Opinion and Order addressing the petitions of several Regional Bell Operating Companies ("RBOCs"), the Alliance of Public Technology and the Association for Local Telecommunications Services ("ALTS").^{1/} Those petitions concern various regulatory issues in connection with a desire to provide advanced telecommunications capability. The Commission determined that the obligations under the Telecommunications Act of 1996 are applicable to the RBOCs' provision of advanced telecommunications services, unless provided via a separate subsidiary. The Commission initiated a Notice of Proposed Rulemaking ("NPRM") to address the separate affiliate requirements.^{2/} In addition, the Commission proposed measures to promote competition, including ALTS' petition concerning collocation and the impact of advanced services on local loops.

^{1/} *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, FCC 98-188, released August 7, 1998 (hereafter "Notice").

^{2/} Notice at ¶¶ 85-117.

Nortel is keenly interested in advanced telecommunications capabilities, which instigated the *Notice*. It is the leading global supplier, in more than 100 countries, of digital telecommunications systems to businesses, universities, local, state and federal governments, the telecommunications industry, and other institutions. The company employs more than 30,000 people in the United States in manufacturing plants, research and development centers, and in marketing, sales and service offices across the country.

A. Full Separation of Assets Should Not Be Required for the Provision of Advanced Services

In considering the issue of a separate affiliate for incumbent LEC provision of advanced services like xDSL, the Commission should be aware in crafting such rules that efficiently designed xDSL technologies, such as Nortel's 1 Meg Modem^{3/}, can be integrated into the existing Public Switched Telephone Network (or "PSTN") switching infrastructure. This integration results in a significantly more cost-effective deployment because it utilizes the infrastructure already in place, including the copper loop plant. The alternative is to install a completely independent overlay network.

Should the Commission adopt its tentative conclusion to allow the incumbent LECs to establish separate advanced services affiliates,^{4/} Nortel recommends that measures

^{3/} Nortel's 1 Meg Modem, which uses Customer Digital Modem (CDM) technology, is a high-speed asymmetric digital offering that was designed to take advantage of the enormous investment that has been made in the existing copper local loop. 1 Meg Modem provides the means for delivering advanced services by enabling a dedicated data connection of up to 1.28 Mb/s downstream capability to the end user and up to 320 Kb/s upstream from the end user concurrent with voice service, over the existing copper loop. The 1 Meg Modem is available for large-scale deployment today. As a simple "plug-and-play" digital replacement for analog modem technology, the 1 Meg Modem provides fast and reliable access to the Internet with no rewiring in the home and no need for a subscriber service call.

^{4/} *Notice* at ¶ 83.

be taken to ensure that there are no regulatory impediments to the deployment of integrated solutions as described above. In particular, with regard to separation of switching facilities and operations,^{5/} it should be possible for the incumbent LEC and its advanced services affiliate to deploy high-speed data line equipment on the LEC's switch. The rules should also be crafted to not impede the ability of unaffiliated entities to negotiate similar arrangements.^{6/} Without such a provision, the advanced services affiliate (and unaffiliated entities) would have to completely build an independent overlay network, meaning users will be faced with higher costs than necessary.

Particularly hard hit will be rural areas and those with low xDSL penetration rates. In such circumstances, having the lower cost integrated solution available will mean the difference between having xDSL service or not. In crafting its rules, the Commission should be careful not to preclude the use of integrated solutions like Nortel's 1 Meg Modem by either incumbent LECs or CLECs.

B. Restrictions on the Type of Equipment that Can be Collocated

The Commission seeks comment on the type of equipment which should be permitted to be collocated.^{7/} With respect to advanced technologies capabilities, in order to give the market sufficient flexibility, trying to be too precise in the types of equipment that can be collocated would be counterproductive to the deployment of technologies. The lines

^{5/} Notice at ¶ 96. The first requirement includes in part that "the incumbent and affiliate may not jointly own switching facilities" and that "the incumbent may not perform operating, installation, or maintenance functions for the affiliate."

^{6/} *Id.*, requirement seven.

^{7/} Notice at ¶¶ 129-132.

of demarcation are already blurred as to what is switching and transmission, and will continue to be so. To try and establish such demarcations will inevitably distort the market because the industry will try to develop equipment which fits the rules and that may not be beneficial to consumers in the long run. xDSL technology is in that position today.

By its nature, xDSL technology allows for the integration of voice and data, both circuit- and packet-switched. The most efficient deployment is where the capability is integrated into the existing switching infrastructure. As a result, collocated equipment to provide advanced services, such as Nortel's DMS™ and 1 Meg Modem products, could possibly have voice and data capabilities integrated. The Commission should not force carriers to disable the switching capabilities of the equipment. This would preclude cost-effective deployment of advanced services and force higher costs onto carriers and ultimately onto consumers.

C. Commission Rules Should Recognize Varying Types of Copper Loops

In designing technologies like xDSL, Nortel is very conscious of the importance of delivering affordable products, not only in terms of the product hardware and software costs, but also of the total system cost. Such costs include the available loop plant, as well as installation, maintenance and operational costs. The residential, small business, and rural environments are very demanding in this regard. By taking an overall systems approach, Nortel's 1 Meg Modem product is able to offer affordable advanced xDSL service in these demanding environments.

In assessing the available loop plant for cost-effective deployment of xDSL technology, Nortel categorizes copper loops as follows: (1) "unconditioned" loops, which

have no capacitive or inductive devices (such as loading coils) on them, and (2) "qualified" loops, which require special conditioning or engineering to meet more-stringent requirements. Unconditioned loops are readily available, easily identified and the least costly for the incumbent LEC to provide. Both Nortel's 1 Meg Modem and EtherLoop™, due to its robustness and flexibility, works well with unconditioned loops, without the need for the more costly qualified loops.

Nortel recommends that the Commission adopt the above loop categorization to ensure that the lowest cost and functional loop be available to those carriers deploying xDSL on unbundled loops.^{8/} The deployment of xDSL should not be impeded by requiring excess conditioning and qualification of loops. For copper facilities to be provided in a fair and reasonable manner for xDSL technology deployment, the rules should allow for costs to be in proportion to the physical characteristics of the loop and the conditioning required by the selected technology. Again, such consideration will result in lower costs, more rapid deployment, and ultimately in wider availability of xDSL technology especially to small business, residential and rural users.

D. An Interim Waiver Process is Needed for Part 68 Rules to Facilitate the Deployment of New Technologies

With respect to loop spectrum management, Nortel believes that the Commission has identified an important issue raised by the deployment of advanced telecommunications capability services such as xDSL. As the *Notice* acknowledges, use of loops for such services can affect the quality of service on other nearby loops through

^{8/} *Notice* at ¶ 164. The Commission seeks comment on the definitions of loops "to ensure that competitive LECs have access to the loop functionalities they need to offer advanced services."

problems such as cross-talk.^{9/} Nortel believes that there is already in place a regulatory mechanism to address the relevant Customer Premise Equipment ("CPE") issues on a national basis -- Part 68 of the Commission's Rules.

Part 68 is intended to ensure that equipment connected to the telephone network does not cause harm, including degradation of service to other subscribers.^{10/} Through a notice and comment proceeding, the Commission should modify Part 68 to accommodate new technologies such as xDSL. Nortel understands that the industry, through TIA, is undertaking efforts to assist the Commission in such a proceeding.

Nortel believes that regulation should not arbitrarily preclude new technologies (like xDSL) or inordinately delay their deployment. Nortel has developed products in support of the new xDSL services, including EtherLoop and 1 Meg Modem. The Commission has not yet amended its Rules to reflect these types of advanced technologies and services, however.

For the 1 Meg Modem product, Nortel has designed the equipment to meet the spectrum emission mask of T1.413 Issue 2 (draft) to address cross-talk concerns. Nortel has previously recommended that spectrum mask as the basis for granting interim Part 68 waivers for xDSL CPE.^{11/} With regard to EtherLoop, the equipment has been designed with advanced frequency agility to prevent cross-talk with services on adjacent loops.^{12/}

^{9/} Notice at ¶ 160.

^{10/} Section 68.3 of the Commission's Rules defines "harm" to include "degradation of service to persons other than the user of the subject terminal equipment."

^{11/} For a more detailed discussion of this issue, *see* Nortel Comments on Paradyne Petition for Waiver of Part 68, DA 98-1358, filed August 7, 1998.

^{12/} Advanced frequency agile systems, such as EtherLoop, prevent crosstalk with incumbent DSL systems on adjacent loops by detecting actual crosstalk coupling from these systems and appropriately adjusting their own PSD profiles. Such systems should be permitted under Part 68.

Nortel thus urges the Commission to make the necessary rules changes, and to grant waivers of Part 68 in the interim when the manufacturer can demonstrate that its product will avoid harm to the network (including allowing manufacturers the flexibility to address cross-talk concerns through either compliance with T1.413 Issue 2 (draft) PSD masks or using alternative approaches such as frequency agility).

Prior to completion of the rulemakings, the Commission should establish clear criteria for interim waivers until the Commission's Rules are modified, so that the deployment of new technology is not delayed while a rulemaking proceeding is initiated and completed.^{13/} Nortel believes that, once an accredited national standards development organization (such as Committee T1) has reached final technical consensus agreement on a loop spectrum specification for a technology, Part 68 waivers should be available to manufacturers that comply with that aspect of the standard (such as T1.413 Issue 2 (draft)), even before the standard is published.^{14/} Such a waiver process will facilitate early deployment of new technologies and faster accumulation of field experience, which is essential to advanced technologies' long term success, while also minimizing the likelihood of problems with cross-talk or other network harm.

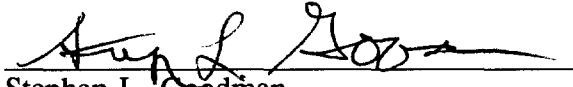
^{13/} *Id.*

^{14/} Committee T1 has already reached a final consensus with regard to xDSL equipment: T1Default Letter Ballot LB-652, "Draft Proposed Revision of ANSI T1.413-1995 – Network and Customer Installation Interfaces – Asymmetric Digital Subscriber Line (ADSL) Metallic Interface," available at <<ftp://ftp.t1.org/pub/ballots/default/lb652-d.pdf>>. The default letter ballot closed on August 10, 1998 and all comments have been resolved as of September 4, 1998. The document is now technically complete and is being forward to ANSI for publication as an American National Standard.

E. CONCLUSION

In sum, Nortel concurs with the Commission's goal, as embodied in the *Notice*, of facilitating the deployment of advanced telecommunications capabilities by all carriers. The Commission can help achieve that goal by avoiding regulations which distort the market, and by minimizing unnecessary regulatory burdens and delays as suggested herein.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Stephen L. Goodman", is written over a horizontal line.

Stephen L. Goodman
Halprin, Temple, Goodman & Sugrue
1100 New York Avenue, NW
Suite 650, East Tower
Washington, D.C. 20005
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